DOCUMENT RESUME

ED 386 578 CE 069 826

AUTHOR Holmberg, Borje
TITLE The Sphere of Distance-Education Theory Revisited. ZIFF Papiere 98.
INSTITUTION Fern Univ., Hagen (Germany). Inst. for Research into Distance Education.
PUB DATE Sep 95
NOTE 21p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Education; Adult Learning; *Delivery Systems; *Distance Education; *Educational Objectives; *Educational Principles; *Educational Theories; *Learning Processes; Literature Reviews; Program Administration; Synthesis; Teaching Methods

ABSTRACT

Perhaps the most distinctive feature of distance education (DE) is that it is characterized by noncontiguous communication between the supporting organization and its students. A theory of DE must include phenomena and concerns that are internal to its practice and can also embrace external conditions influencing or being influenced by DE. In view of these facts, a general theory of DE proposed includes the following points: (1) DE serves individual learners who cannot or do not want to make use of face-to-face teaching; (2) society benefits from DE provision of liberal study opportunities for individual learners and professional/occupational training; (3) DE may inspire metacognitive approaches; (4) DE is based on deep learning as an individual activity; (5) DE is open to behaviorist, cognitive, and other modes of learning but also includes an element of industrialization; (6) personal relations, study pleasure, and empathy between students and those supporting them are central to learning in DE; and (7) although it is an effective mode of training, DE runs the risk of leading to mere fact learning and reproduction of accepted "truths." (Appended are summaries of explicit theories and hypotheses regarding distance education published elsewhere. Contains 59 references.) (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 386 578

FernUniversität
-Gesamthochschule- in Hagen

ZIFF PAPIERE 98

Börje Holmberg

The Sphere of Distance-Education Theory Revisited

Zentrales Institut für Fernstudienforschung (ZIFF)
FernUniversität - Gesamthochschule

Hagen, Sept. 1995

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

B Holmberg

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE 065 826

BEST COPY AVAILABLE

ZIFF Papiere
Herausgegeben von Helmut Fritsch
Redaktion: Frank Doerfert, Helmut Fritsch, Helmut Lehner (Konstanz)

© 1995 Zentrales Institut für Fernstudienforschung
FernUniversität - Gesamthochschule -
D 58084 Hagen
Tel.: +49 2331 9872580 FAX +49 2331 880637

BEST COPY AVAILABLE

4 Distance education is based on deep learning as an individual activity. Learning is guided and supported by non-contiguous means. Teaching and learning rely on mediated communication, usually based on pre-produced courses.

5 Distance education is open to behaviourist, cognitive, constructivist and other modes of learning. It has, on the one hand, an element of industrialisation with division of labour,use of mechanical devices, electronic data processing and mass communication, on the other hand, paradoxically, caters for individualisation and one-to-one relations between students and tutors through mediated interaction.

6 Personal relations, study pleasure and empathy between students and those supporting them (tutors, counsellors etc.) are central to learning in distance education. Feelings of empathy and belonging promote students' motivation to learn and influence the learning favourably. Such feelings are conveyed by students' being engaged in decision making, by lucid, problem-oriented conversation-like presentations of learning matter that may be anchored in existing knowledge, by friendly, non-contiguous interaction between students and tutors, counsellors and others supporting them, and by liberal organisational-administrative structures and processes.

7 While it is an effective mode of training distance education runs the risk of leading to mere fact learning and reproduction of accepted 'truths'. However, it can be organised and carried out in such a way that students are encouraged to search, critisise and identify positions of their own. It thus serves conceptual learning, problem learning and genuinely academic ends.

8 In sum: the above represents on the one hand a description of distance education, on the other hand a theory from which hypotheses are generated and which has explanatory power in that it identifies a general approach favourable to learning and to the teaching efforts conducive to learning.

Testable hypotheses generated

To what exent can this theory formulation be used as a generator of testable hypotheses? Let us look at the parts one by one.

It is evidently possible to express hypotheses based on *part 1* along the following line: If distance education is provided, then learners can study anywhere and at any time. It is a fact that large numbers of students do study without face-to-face support, without being bound by timetables or classes (most private distance-education organisations allow their students to begin and finish their studies at any time, the only limits being examination periods, if any). They can freely choose, within the limits of course offers available, what, how much, when and where to study, and thus practice independence.

The statements under *2* are also borne out by practice. In fact, not *if* but *because* distance education exists, student-centred, recurrent and lifelong education and training are not only practicable but actually practised and have been so during the whole of this century (Gaddén 1973). There is nothing to limit free access to distance education unless teaching organisations choose to specify entrance requirements. It is possible to start distance learning at any level in any subject for which courses are available.

That the types of learning mentioned under *3* can be and are being carried out by distance-education methods has been documented in many contexts, as shown in my book of 1995, for

instance. The hypothesis that metacognitive processes can be inspired by and promote distance education is being tested by Thorpe 1995 (and elsewhere); cf. also Evans 1991.

The reference to deep learning under *4* causes an hypothesis to the effect that study results are good if deep-level learning is practised. This assumption has been tested (cf. Marton & Säljö 1976, Morgan, Taylor & Gibbs 1982, Morgan 1984). The rest of *part 4* describes distance education as relying on media both for subject-matter presentation and for student-tutor interaction, an uncontested characterisation open to empirical testing.

Careful studies (Bååth 1979, Weingartz 1981 and 1990, for example) have illustrated the application of the modes of teaching and learning mentioned under *5*. On the implications of constructivist approaches see Jeggede 1992 and Garland 1995.

The industrialisation of many procedures characteristic of distance education have been illuminated by Peters 1973, 1983 and 1989. The fact that in many (by no means all) distance-education situations students pace themselves testify to the possibility and reality of individualisation. The one-to-one relationships between students and tutors occur through individual assignment submission and non-contiguous tutoring.

Part 6 summarises the empathy approach inherent in my theory of guided didactic conversation, which has generated hypotheses tested by rigorous falsification attempts in the spirit of Karl Popper (Holmberg, Schuemer & Obermeier 1982) and scrutinised along with related conversation approaches (Holmberg 1995 pp. 45-55, 125-127 and 172-182). This theory element has been ingeniously further developed by Juler 1991, who substitutes discourse for conversation.[3] *Part 6* further brings up Ausubel's subsumption hypotheses, hypotheses about the effectiveness of readability (Langer et al. 1974, e.g.), access structure (Waller 1977, Doerfert 1980), frequency of assignment submission (Bååth 1980, Holmberg & Schuemer 1989), turn-round time of assignments (Rekkedal 1983), the allocation of personal tutor-counsellors (Rekkedal 1985) and other hypotheses already tested as well as others that are testable. I have elsewhere (Holmberg 1995 pp. 176-179) specified ten hypotheses on distance learnig, thirteen on distance teaching and seven on distance-education organisation and administration (see Appendix).

Part 7 of the theory is concerned with the effectiveness of distance education in training as well as its impact on purely academic education. Hypotheses generated on these issues have partly been empirically tested, partly analysed in other ways (Childs 1965, Granholm 1971, Hinds 1982, Weingartz 1990; cf. also Holmberg 1989 and Thorpe 1995).

Part 8 summarises the theory suggested and expresses my claim that it is not only predictive but also has explanatory power.

The potential of the theory suggested

From what has been said so far it is evident that parts 1-5 and 7 on the one hand allow the generation of testable hypotheses, on the other hand that, although contributing to explanation,

3 According to Inglis 1995 my 'conversation' differs from the concept of dialogue developed by Evans & Nation 1989 in that the latter, allegedly unlike me, believe 'that learning is in essence a process of meaning-making and that meaning is made in conversation' (Inglis 1995 p. 367). I agree with Evans & Nations provided simulated communication is included, which should be said for the record. There is no dissension here.

they mainly describe the functions of a mode of education at least largely created for the purpose of meeting the requirements whose practicability is the object of the testing. This in itself represents no attempt to understand the ontology of a given phenomenon, but has more the character of evaluating the outcomes of a planned activity. It is important to consider ('theorise') this from the points of view of values, corroborations of assumptions and explanation.

Part 6 is different. It has on its own both predictive and explanatory power, although, of course, it is impossible to postulate any automatic cause-effect principle in research that aims at optimising educational methods and procedures. This is so as education is concerned with human beings with personalities, hopes and wills of their own. It is nevertheless possible to predict probable outcomes or outcomes that will occur in most cases.

This is part of what my theory of didactic conversation is about as it leads up to an exhortation to address students personally and use a conversational style in course materials. It has led to a number of hypotheses thus translatable into suggestions for action (Holmberg 1995 pp. 176-178; cf. Nation & Evans 1989).

I follow Popper in insisting on testing hypotheses by falsification attempt, which, however, does not necessarily mean that the theory of didactic conversation and its testing are unexceptionable from the points of view of his epistemology. My theory with its hypotheses may stress prediction more than a truly Popperian theory would do. However, as indicated above, it is certainly not without some explanatory power.

The question arises if it is really useful to combine the eight parts of my theory formulation into one unit considering that they are of at least two different kinds as indicated or at all to try to develop a general theory of distance education. Rumble who stresses that distance-education theory is 'heavily circumscribed', states categorically that the 'search for a firmly-based theory of distance education which is comprehensive in nature is misconceived', but adds that 'clearly one can have descriptive statements' and other helpful theory elements (Rumble 1992 p. 120). Perraton finds it 'naive to seek a single theory of distance education', but states that 'in the teaching system it is possible to make theoretical statements, using the term "theory" in a strict and narrow sense' (Perraton 1987 p. 11).

Naturally I do not believe that my wording of a would-be comprehensive theory can possibly cover all the relevant elements of distance education, provide a definite frame for hypothesising or claim lasting relevance. I believe, however, that it covers important aspects of distance education and that it is valid at present. I further claim that, in the area it extends over, it

- has internal consistency as a logical system,
- establishes functional relationships between the teaching and the outcomes of learning,
- is capable of generating - and does generate - testable hypotheses and predictions, and
- is expressed in such a way that research data capable of possibly refuting (falsifying) the theory can, in principle, be collected.

Is the game worth the candle? Cui bono?

In the hope that this is useful I exceed the limits defined by Rumble and Perraton, which no doubt reflect a widely shared view, and thus consciously lay myself open to expected criticism. I do this as I believe that my attempt may pave the way for further thinking leading to something

better.[4] Realising that while our conjectures (theories, hypotheses) may survive refutation attempts and thus cannot be falsified, 'can never be positively justified' or 'established as certainly true', we have every reason to draw on 'those of our theories which turn out to be highly resistant to criticism' (Popper 1976 p. VII). Will scholars in the field of distance education find it worth while testing the resistance of the above theoretical approach?

The question remains if this is just a harmless academic exercise or something of possible importance. I believe that the attempts to develop theory elements and even a general theory of distance education represent an inevitable quest to those convinced that distance education is a separate kind of education which can only to a very limited extent be described, understood and explained in terms of conventional education (Holmberg 1995 pp. 161-165). Distance education is also a separate field of scholarly study, which I for one describe as an academic discipline (cf. Coldeway et al. 1989). As such it needs, *inter alia*, a frame for its description, analysis of its phenomena, a study of the integration possibilities of these as well as criteria for practice. The above theory is an attempt to circumscribe the reality of distance education and demonstrate its potential. This seems to me to be a worthwhile endeavour, and I challenge colleagues to continue the debate, to reject my approach and replace it by something different, or to further develop and refine the above thinking.

In the appendix to this paper are presented further examples of theory building and generation of hypotheses, in distance education.

4 Cf. Popper 1976 p. VII: 'Cricism of our conjectures is of decisive importance: by bringing out our mistakes it makes us understand the difficulties of the problem we are trying to solve ... As we learn from our mistakes our knowledge grows ...'.

APPENDIX

Explicit theories and hypotheses published elsewhere

Complementary to the above presentation the following quotations of theory attempts and hypotheses are meant to illuminate the on-going discussion of distance-education theory.

Perraton 1981 (see p. 3-4 above),

concerned with the *need to expand education and with the importance of dialogue*, on the one hand states that the 'success or failure of a distance-education project will ... depend at least as much on its political context as on its methods' (p. 15), on the other hand in a running, argumentative commentary specifies fourteen statements which have the character of hypotheses. They are:

1 You can use any medium to teach anything.

2 Distance teaching can break the integuments of fixed staffing ratios which limited the expansion of education when teacher and student had to be in the same place at the same time.

3 There are circumstances under which distance teaching can be cheaper than orthodox education, whether measured in terms of audience reached or of learning.

4 The economies achievable by distance education are a function of the level of education, size of audience, choice of media and sophistication of production.

5 Distance teaching can reach audiences who would not be reached by orthodox means.

6 It is possible to organise distance teaching in such a way that there is dialogue.

7 Where a tutor meets distance students face-to-face, her role is changed from being a communicator of information to that of a facilitator of learning.

8 Group discussion is an effective method of learning when distance teaching is used to bring relevant information to the group.

9 In most communities there are resources which can be used to support distance learning, to its educational and economic advantage.

10 A multi-media programme is likely to be more effective than one which relies on a single medium.

11 A systems approach is helpful in planning distance education.

12 Feedback is a necessary part of a distance-learning system.

13 To be effeetive, distance-teaching materials should ensure that students undertake frequent and regular activities over and above reading, watching or listening.

14 In choosing betwenn media, the key decision on which the rest depend concerns the use of face-to-face learning.

(Statements extracted from Perraton 1981)

Holmberg 1985

presents a theory of teaching based on guided didactic conversation.

General background assumptions are:

- that the core of teaching is interaction between the teaching and learning parties; it is assumed that simulated interaction through subject-matter presentation in pre-produced courses can take over part of the interaction by causing students to consider different views, approaches and solutions and generally interact with a course
- that emotional involvement in the study and feelings of personal relation between the teaching and learning parties are likely to contribute to learning pleasure
- that learning pleasure supports student motivation
- that participation in decision-making concerning the study is favourable to student motivation
- that strong student motivation facilitates learning
- that a friendly, personal tone and easy access to the subject matter contribute to learning pleasure, support student motivation and thus facilitate learning from the presentations of pre-produced courses, i.e. from teaching in the form of one-way traffic simulating interaction as well as from didactic communication in the form of two-way traffic between the teaching and learning parties.
- that the effectiveness of teaching is demonstrated by students' learning of what has been taught.

A prescriptive teaching theory is then worded as follows:

Distance teaching will support student motivation, promote learning pleasure and effectiveness if it is provided in a way

- felt to make the study relevant to the individual learner and his/her needs
- creating feelings of rapport between the learner and the distance-education institution (its tutors, counsellors etc.)
- facilitating access to course content
- engaging the learner in activities, discussions and decisions; and
- generally catering for helpful real and simulated communication to and from the learner.

The following factors are described as favourable to teaching:

1 A presentation of course goals or objectives engaging the student in the evaluation of their relevance and, if at all possible, in their selection

2 A course structure carefully based on required earlier learning making sub-sumptions in Ausubel's sense[5] possible and more or less a matter of course

5 Cf. Ausubel's guiding principle: 'If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly' (Ausubel 1968 before the Preface).

Börje Holmberg

THE SPHERE OF DISTANCE-EDUCATION THEORY REVISITED

The need for a theoretical framework for studies of distance education has been repeatedly articulated by scholars and practitioners, thus again and again during the 17th world conference of the International Council for Distance Education held in Birmingham in 1995. As early as 1968 Manfred Delling, one of the very few distance educators who consistently relate practice to theory, wrote: 'We need distance-education theory to interpret experiences, to guide systematic research, to develop distance education, to train the distance educators and, finally, to elucidate the problems of distance education in discussions with face-to-face educators' (translated from Delling 1971 p. 15). In the same spirit Keegan writes: 'A firmly based theory of distance education will be one which can provide the touch-stone against which decisions - political, financial, educational, social - when they have to be taken, can be taken with confidence' (Keegan 1983 p.3).

As one who has been concerned with this issue for many years and has published contributions to a theory of distance education (Holmberg, Schuemer & Obermeier 1982, Holmberg 1985 and 1995, for example) the present writer feels challenged to continue on the path towards a relevant theory.

The theory concept

I take theory to mean

- a systematic ordering of ideas about the phenomenon of our field of inquiry and
- an overarching logical structure of reasoned suppositions which can generate intersubjectively testable hypotheses.
  The hypotheses generated should, in principle, be such that they can be worded as *if ... then* or *the ... the* propositions.

A theory generating hypotheses can have descriptive, predictive and explanatory elements. According to Popper the aim of the theoretician 'is to find explanatory theories (if possible, true explanatory theories); that is to say, theories which describe certain structural properties of the world, and which permit us to deduce, with the help of initial conditions, the effects to be explained' (Popper 1980 p. 61).

If we believe in and find logical and empirical support for a hypothesis this can guide practice. Let us suppose that we operationalise the concept of readability so that it is quite clear what is meant and then hypothesise: 'If the style of a distance-education course is characterised by a high degree of readability, then students will learn easily'. This will evidently lead to a practical rule to be followed: 'Develop courses is such a way that they are highly readable if you want students to learn easily'. Hypotheses of this kind can never be proved to be correct but can be subjected to falsification attempts. If by empirical testing they cannot be shown to be incorrect we may, in Popper's spirit, be entitled to adopt them *ad hoc*[1]

1 In a penetrating article criticising my somewhat watered-down Popperianism (and Popper) Rumble queries the possibility to falsify hypotheses of the kind I am concerned with (Rumble 1992, p. 112).

This represents a rational, not a positivistic, procedure as empirical data are used to corroborate, refute or leave unresolved the emerging hypotheses and not used as starting-points.

The definition of distance education

We first have to delineate the area of distance education.
Several more or less exhaustive definitions have been presented. Outstanding among them is Keegan's:

Distance education is a form of education characterised by:

- the quasi-permanent separation of teacher and learner throughout the length of the learning process (this distinguishes it from conventional face-to-face education);
- the influence of an educational organisation both in the planning and preparation of learning materials and in the provision of student support services (this distinguishes it from private study and teach-yourself programmes);
- the use of technical media - print, audio, video or computer - to unite teacher and learner and carry the content of the course;
- the provision of two-way communication so that the student may benefit from or even initiate dialogue (this distinguishes it from other uses of technology in education); and
- the quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialisation purposes.

(Keegan 1990 p. 44)

What is above all important is that distance education is characterised by non-contiguous communication between the supporting organisation and its students. This communication is of two kinds, viz

- o one-way traffic in the form of pre-produced course materials sent from the supporting organisation and involving students in interaction with texts, recordings and data bases, which can be described as simulated communication, and
- o two-way traffic,i.e. real communication between students and their supporting organisation, in writing, on the telephone, by fax or e-mail.

Distance education thus has two constituent elements, the teaching exposition referred to as one-way traffic and the real communication by means of which students have access to personal tutoring and counselling.

The scope of a theory of distance education

A theory of distance education has to include phenomena and concerns that are internal to its practice and can also embrace external conditions influencing or being influenced by distance education. Campion & Guiton challenge 'the theoretical underpinning of policies which ignore, and hence deliberately or inadvertently, hide the fundamental importance of the economic, technological, demographic, cultural, political and social contexts within which a system of

higher education operates' (Campion & Guiton 1991 p. 12). The authors quoted make a distinction betweeen endogenous and exogenous factors. Developing this dichotomy we may assign to the latter the distance-education potential for liberating learners from societal and other compulsions, for individualisation and the opening up of educational, professional and social boundaries as well as the relations between social conditions and educational opportunities and practice. What is in the so-called critical theory of the Frankfurt school called the emancipatory potential may well be included in a theory of distance education.

The internal, 'endogenous', factors are then subject-matter presentation, student support, student-tutor and student-student interaction, methods, media, the organisation and administration of distance education and other factors influencing, facilitating or obstructing learning, class or group learning if any (cf. Bates 1995 pp. 167-168) etc. My 'didactic conversation' promoting personal relations between those engaged in the teaching-learning process, study motivation and learning outcomes belongs here (Holmberg 1995 pp. 47-50 and elsewhere).

These concerns engage theorists and practitioners. In my book of 1995, *Theory and practice of distance education*, I have endeavoured to give a comprehensive picture of them as based on values, theoretical concepts and social conditions and as leading to practice and experiments.

Theorising these 'endogenous' and 'exogenous' factors includes description, deduction of prescriptions and explanation. In the so far most comprehensive and elucidating discussion of the potential of distance-education theory Rumble, following Royce, stresses both description and explanation as theory elements (Rumble 1992 p. 116). There is reason to include in theory presentations such significant descriptions of distance education as illuminate its basic character and potential. My empathy approach (Holmberg 1991) belongs here. So may the identification of possible 'post-Fordists' or 'neo-Fordist' traits of distance education (Campion 1989) do. Cf. Rumble, however: 'While some distance education systems ... have approached the mass production ideal, the general [Fordist] thesis does not hold' (Rumble 1995 p. 24).

The commitment to theory

Theoretical considerations of distance education are far from rare. A valuable map of the general theoretical background against which distance education can be described occurs in Bååth's early work on 'educational models' (1979). He found that seven 'models' that he had analysed (Skinner's behaviour-control, Rothkopf's model for written instruction, Ausubel's organiser model, the model of Structural Communication, Bruner's discovery learning, Rogers' model for facilitating learning and Gagné's general teaching model) are all applicable to distance education and further that demands on distance-education systems which should inspire new developments can be inferred from the models studied. A number of later publications testify to the concern about distance-education theory. Apart from those referred to elsewhere in this paper can be mentioned Harris 1987, Perraton 1987, Evans & Nation 1989 and 1992, Juler 1990, and Thorpe 1995. Few have found it necessary to develop theories explicitly generating testable hypotheses, however. A contribution by Perraton 1981 is an exception. He bases his arguments on a view of education as connected with power and makes a case both for expanding education as an egalitarian requirement and for stressing the importance of dialogue. He expresses his theory in the form of fourteen statements (hypotheses), among them

No 2 Distance teaching can break the integuments of fixed staffing ratios which limited the expansion of education when teacher and student had to be in the same place at the same time.

No 6 It is possible to organise distance teaching in such a way that there is dialogue.

No 10 A multi-media programme is likely to be more effective than one which relies on a single medium.

Peters' analysis of distance education as an industrialised form of teaching and learning is often described as a theory, a designation that Peters himself rejects (Peters 1989 p.5). Also Moore's description classifying educational programmes on the two dimensions of autonomy and transactional distance, the latter expressed in terms of dialogue and structure (Moore 1977 and elsewhere) and Saba's further development of this thinking (Saba 1989) have been referred to as theory. Moore's approach undoubtedly early led to one. The study of the dichotomy he had identified generated a hypothesis to the effect that 'more autonomous persons will be attracted to more distant methods of teaching and learning' (characterised by high structure and little dialogue) 'and therefore, that measurable differences will be found in the "autonomy" of learners in programmes varying in distance' (Moore 1973 p. 674). This hypothesis was, in fact, corroborated although it was also found that distance students do not reject guidance (Moore 1976).

Other theoretical considerations relevant to our discussion are the identified dichotomies knowledge absorption vs conceptual learning (Sparkes 1993), surface learning vs deep-level learning (Marton & Säljö 1976) and ready-made systems vs problem learning (Weingartz 1981), as well as considerations about instructional design (Richey 1968) as related to behaviourism, cognitive psychology, constructivism (Jeggede 1992), technology (Bates 1995) and even phenomenology (Parer 1994; cf. Marton's phenomenography [Marton 1981]).

Against the background of theoretical considerations thus exemplified I feel entitled to suggest the following wording of an attempted general theory of distance education. For practical reasons I divide it into eight parts.

The theory suggested

1 Distance education serves individual learners who cannot or do not want to make use of face-to-face teaching. These learners are very heterogenous.[2]

Distance education can make learners independent of decisions made by others as to place of study, division of the year into study terms and vacations, timetables and entry requirements.
Distance education thus promotes students' freedom of choice and independence.

2 Society benefits from distance-education provision of on the one hand liberal study opportunities for individual learners, on the other hand of professional/occupational training.

Distance education is an instrument for recurrent and lifelong learning, for free access to learning opportunities and equity.

3 All learning concerned with the acquisition of cognitive knowledge and cognitive skills as well as affective learning and some psychomotor learning are effectively provided for by distance education. Distance education may inspire metacognitive approaches.

2 Cf. Bate's reference to 'different types of target group: for instance independent distance learners studying primarily at home, those in the workforce needing training, those who are combining part-time study with work, those who are studying full-time, but only partly on campus, or those who are combining one or more of these situations' (Bates 1995 p. 2).

3 Pre-produced course materials characterised by a conversational style with invitations to an exchange of views and with attempts to involve the student emotionally

4 A style of presentation that is easily accessible; a high degree of readability of printed course materials

5 Graphical and typographical presentations facilitating access to printed courses and selection of relevant subject matters

6 A choice of media, sequencing and other principles for course presentation adapted to student needs and to the requirements of subject areas studied, e.g. those of operations on *knowledge* and *operations with knowledge* (Chang et al., pp.14-16)

7 Communication facilities (in writing, on the telephone and/or by audio tape) constantly open to students for questions and exchanges of opinions with tutors and counsellors

8 Frequent submission of assignments requiring students to solve problems, evaluate texts or recordings

9 Friendly, helpful and extensive tutor comments on assignments submitted with suggestions expressed in a way to promote personal rapport between student and tutor; the same approach should characterise computer-marked and computer-commented assignments

10 Quick handling of assignments so that students need not wait for more than a week to have their work returned with corrections and comments

11 Self-checking exercises in pre-produced courses through which students are induced to practice skills (in, for instance, foreign languages, mathematics, statistics); not only model answers should be provided, but also extensive comments based on course writers' experience of likely errors and misunderstandings.

Hypotheses generated:

ad 1) If students are engaged in the evaluation of the relevance of suggested study objectives (and/or are given the opportunity to influence their selection), then their attitudes to the study will be more favourable and their achievements will be better than if objectives are simply prescribed (The more ..., the better ...).

ad 2) A reference to Ausubel's studies here is described as sufficient.

ad 3) This statement has been empirically studied - and given some statistical support - on the basis of four hypotheses:

- The stronger the characteristics of guided didactic conversation, the stronger the students' feelings of personal relationship between them and the supporting organisation.
- The stronger the students' feelings that the supporting organisation is interested in making the study matter personally relevant to them, the greater their personal involvement.
- The stronger the students' feelings of personal relations to the supporting organisation and of being personally involved with the study matter, the stronger the motivation and the more effective the learning.

- The more independent and scholarly experienced the students, the less relevant the characteristics of guided didactic conversation.
  (Holmberg, Schuemer & Obermeier 1982)[6]

ad 4) The more easily accessible the preproduced course (the more readable the texts), the better the outcome of learning.

ad 5) If access-structure measures such as headlines, graphics and other typographical means are applied, then the learning outcome is improved in relation to the study of the same text without this access structure.

ad 6) Hypotheses for individual principles, media and target groups can be formulated and tested empirically; this is the weakest of the eleven statements as in itself it implies no prediction, but merely indicates that predictions may be tested by empirical studies of individual principles or media under specific circumstances.

ad 7) If communication facilities of the kind described are provided, students will be more motivated and more successful than if left to themselves.

ad 8) John Bååth's empirical investigation of this subject implied testing eleven hypotheses concerning differences caused by varying degrees of submission frequency with regard to study perseverance, attitudes, achievements and study time (Bååth 1980).

ad 9) If tutor comments are expressed in a personal style and are ostensibly based on a wish to be helpful (a matter of formulation), then students will be more satisfied with their study and the learning outcomes will be better than if the tutor comments consist of factual statements only.

ad 10) This statement has been empirically tested - and has been given remarkably strong research support (Rekkedal 1983).

ad 11) If a course contains self-checking exercises of the type mentioned, its students will be more succesful than matching students taking the same course without these exercises. (cf. Bååth 1980, p. 152)

(Extracts from Holmberg 1985)

Keegan 1986 and 1990
on the reintegration of teaching acts:

"A theoretical justification for distance education can be found in the attempt to reintegrate the teaching acts which are divided by the nature of distance education. The intersubjectivity of teacher and learner, in which learning from teaching occurs, has to be artificially recreated. Over space and time a distance system seeks to reconstruct the moment in which the teaching-learning interaction occurs. The linking of learning materials to learning is central to this process.

...

The concept of interpersonal communication is central to the reintegration of the teaching acts in distance education."

(Keegan 1986, pp. 120,121)

---

6) These four hypotheses have been scrutinised in a fruitful way by Mitchell 1992.

Hypotheses generated:

1 The separation of the teaching acts and the learning acts that is characteristic of distance education brings about a weak integration of the student into the life of the institution and this has been linked to drop-out. It is hypothesised, therefore, that distance students have a tendency to drop out in those institutions in which structures for the re-integration of the teaching acts are not satisfactorily achieved.

2 The separation of the teaching acts and the learning acts that is characteristic of distance education brings about weaknesses in the achievement of interpersonal communication between teacher and student and this has been linked to the quality of the learning achieved. It is hypothesised, therefore, that distance students have difficulty in achieving quality of learning in those institutions in which structures for the re-integration of the teaching acts are not satisfactorily achieved.

3 The separation of the teaching acts and the learning acts that is characteristic of distance education places distance education among the non-traditional forms of education in which degrees, diplomas, and qualifications achieved may not receive full academic acceptance. It is hypothesised, therefore, that the status of learning at a distance may be questioned in those institutions in which the re-integration of the teaching acts is not satisfactorily achieved.

Consequences:

1 The *industrialisation of teaching*. The interpersonal communication of conventional education is replaced by what are basically industrialised processes; the design of mechanical and electronic means of communication, the physical production of printed, audio, video, and computer-based materials, and the distribution of these materials throughout the territory served by the institution or throughout the world.

2 *The privatisation of institutional learning*. The learning group is splintered and students study, basically at home, throughout the territory served by the institution. Teaching is focused on the individual student who does not, however, study as a private learner but as a member of an often complex educational bureaucracy.

3 *Change of administrative structure*. Distance institutions are characterised by two characteristic operating subsystems which have specific task and psychological boundaries: course development subsystem and student support services subsystem.

4 *Different plant and buildings*. The warehouse is central, together with postal or other distribution services. Greatly reduced or spread throughout the territory are student facilities ranging from seminar rooms to library and laboratory facilities.

5 *Changes of costing structures*. Distance systems are characterised by high initial start-up costs, lower variable costs per student and give the potential for significantly lower average costs per student provided the student population is large enough. This represents a move away from the labour-intensive costs of education towards the capital investment structures of industrial enterprises.

(Keegan 1986 pp. 125-126; Keegan 1990 pp. 113-114)

Holmberg 1995

presents a general distance-education theory. It agrees with the theory formulation given on pp. 4-5 above, which is a particularised further development.

Hypotheses derived about distance learning:

1 Organised learning can occur without the presence of a teacher or tutor.

2 Intrinsic motivation is a crucial condition for learning.

3 Learning is promoted by students fitting subject matter into existing cognitive structure.

4 Warmth in human relations, bearing on the study situation, is conducive to emotional involvement.

5 Emotional involvement in the study promotes deep learning and goal attainment.

6 Feelings of rapport with tutors, counsellors, and the supporting organisation generally strengthen and support study motivation as well as promote study pleasure.

7 Intellectual pleasure favours deep learning, the use of problem-oriented study processes, and the attainment of study goals.

8 Participation in goal considerations and study planning encourages personal commitment to the learning and feelings of responsibility for the attainment of study goals.

9 Learning is encouraged by frequent, helpful communication with others interested in the study.

10 Maturity makes for motivational stability and the capacitiy to master difficulties and is more likely than not to be combined with inclinations and ability for independence.

Hypotheses derived about distance teaching

Two overarching hypotheses are natural corollaries of the hypotheses about learning.

1 Teaching and counselling can be effectively carried out by non-contiguous means; real mediated communication and simulated communication, incorporated in distance education courses by conversational style and other personal approaches, make dialogue possible.

2 Personal (not necessarily or primarily contiguous) contacts with tutors and other representatives of the suppporting organisation promote emotional involvement.

These overarching hypotheses, which could be regarded as a theory of teaching for distance education ... seem to have explanatory value in relating teaching effectiveness to the impact of feelings of belonging and co-operation as well as to the actual exchange of questions, answers, and arguments in mediated communication. (For more detailed hypotheses see Holmberg 1985 in this appendix pp. 10-12.)

Hypotheses about organisation and administration

Empathy is an essential requirement of the way in which students' (also more peripheral) concerns are handled by the supporting organisation. This applies not only to counselling (which

is, of course, closely related to teaching) but also to correspondence, telephone contacts, dissemination of information on administrative matters, the dispatch of learning materials, assignments commented on, and warehousing procedures.

This thinking produces a first hypothesis concerning:

1 the impact of the empathy approach on administration.

Other hypotheses related to the organisation of distance education are possible and plausible. They can, for example, concern:

2 The factors leading to different types of organisations, for example goals, target groups, social and cultural frame factors influencing learning and teaching.

3 The educational consequences or organisational structures.

4 Effectiveness and economics.

The factual background of these and similar hypotheses is to be found in the basic characteristics of distance educations institutions and the interrelationsships of these characteristics (Graff & Holmberg 1984: 10-11 and 37-57).

Generally applicable hypotheses are these, for example:

5 The less dependent the study is of societal control and of prescribed curricula and procedures, the greater the possibilities not only to individualise the work but also to support student autonomy.

6 If industrialised working methods are used, including systematic planning of courses, standardised procedures, and mechanisation and division of labour, then the standard of preproduced courses is likely to be high (and distance education will be particularly cost-effective for courses with large student numbers).

7 If a small-scale approach is applied, including course creation by individual tutors who also teach students at a distance by interacting with them non-contiguously, then adaptability to specific groups is facilitated (whereas no cost advantages in comparison with conventional education are to be foreseen).

Quite a few of the hypotheses mentioned have directly or indirectly been tested. This applies to the hypotheses about subsumption (Ausubel 1968); conversational style (Holmberg, Schuemer & Obermeier 1982); readability (Langer et al 1974); access structure (Doerfert 1980); frequency of assignment submission (Bååth 1980 and Holmberg & Schuemer 1989); quick handling of assignments, i.e. turn-around time (Rekkedal 1983); and the allocation of personal counsellors (Rekkedal 1985).

Holmberg 1995 pp. 176-179

References

Ausubel, D.P. (1968) *Educational psychology: a cognitive view.* New York: Holt, Rinehart & Winston

Bååth, J.A. (1979) *Correspondence education in the light of a number of contemporary teaching models.* Malmö: LiberHermods

Bååth, J.A. (1980) *Postal two-way communication in correspondence education.* Lund: Gleerup

Bates, A.W. (1995) *Technology, open learning and distance education.* London and New York: Routledge

Campion, M. (1989) Post-Fordism and research in distance education. In Evans,T. (ed.), *Research in distance education 1.* Geelong: Deakin University

Campion, M. & Guiton, P. (1991) Economic instrumentalism and integration in Australian external studies. *Open Learning* 6, 2 , 1 2 - 2 0

Chang, T.M., Crombag, H.F., van der Drift, K.D.J.M. & Moonen, J.M. (1983) *Distance learning: on the design of an open university.* Boston: Kluwer - Nijhoff

Childs, G.B. (1965) Research in the correspondence instruction field. *7th ICCE Proceedings* 79-84. Stockholm: ICCE (NKI)

Coldeway, D.O., Devlin, L.E. & Holmberg, B. (1989) Distance education as a discipline. A debate. *Journal of Distance Education* IV, 1, 54-66

Delling, R.M. (1971) Grundzüge einer Wissenschaft vom Fernstudium. *Epistolodidaktika* 1971, 1, 14-20

Doerfert, F. (1980) *Zur Wirksamkeit typografischer und grafischer Elemente in gedruckten Fernstudienmaterialien.* Hagen: FernUniversität, ZIFF

Evans, T. (1991) An epistemological orientation to critical reflection in distance education. In Evans, T. & King, B.(eds), *Beyond the text: contemporary writing on distance education.* Geelong: Deakin University Press

Evans, T. & Nation, D. (1989) Critical reflection in distance education. In Evans, T. & Nation,D. (eds), *Critical reflections on distance education.* Lewes: Falmer Press

Evans, T. & Nation, D. (1989) Dialogue in practice, research and theory in distance education. *Open Learning* 4, 2, 37-42

Gaddén, G. (1973) *Hermods 1898-1973.* Malmö: Hermods

Garland, M.R. (1995) Helping students achieve epistomological autonomy. In Sewart, D. (ed.), *One world many voices. Quality in open and distance learning* 2, 77-80. Milton Keynes: ICDE/The Open University

Graff, K. & Holmberg, B. (eds) (1988) *International study on distance education: a project report.* Hagen: FernUniversität, ZIFF

Granholm, G. (1971) Classroom teaching or home study - a summary of research on relative efficiency. *Epistolodidaktika* 1971, 1, 2-19

Harris, D. (1987) *Openness and closure in distance education.* Lewes: Falmer Press

Hinds, E. (1987) The school for independent study and international links. *ZIFF Papiere* 69. Hagen: FernUniversität

Holmberg, B. (1985) The feasibility of a theory of teaching for distance education and a proposed theory. *ZIFF Papiere* 60. Hagen: FernUniversität

Holmberg, B. (1989) Key issues in distance education: an academic viewpoint. *European Journal of Education* 24, 1, 11-23

Holmberg, B. (1991) Testable theory based on discourse and empathy. *Open Learning* 6, 2, 44-46

Holmberg, B. (1995) *Theory and practice of distance education.* London and New York: Routledge

Holmberg, B. & Schuemer, R. (1989) *Tutoring frequency in distance education. An empirical study of the impact of various frequencies of assignment submission.* University Park: American Center for the Study of Distance Education, The Pennsylvania State University

Inglis, A. (1995) Towards a dialogic theory of tele-education. In Sewart, D. (ed.), *One world many voices* 2, 364-367. Milton Keynes: ICDE/The Open University

Jeggede, 0. (1992) Constructivist epistemology and its implications for research in distance learning. In Evans. T. & Juler, P. (eds), *Research in distance education* 2, 21-29. Geelong: Deakin University

Juler, P. (1990) Promoting interaction; maintaining independence; swallowing the mixture. *Open Learning* 5, 2, 24-33

Keegan, D. (1983) *Six distance education theorists.* Hagen: FernUniversität, ZIFF

Keegan, D. (1986) *The foundations of distance education.* London: Croom Helm

Keegan, D. (1990) *Foundations of distance education.* London and New York: Routledge

Länger, J., Schulz von Thun, F. & Tausch, R. (1974) *Verständlichkeit in Schule, Verwaltung, Politik und Wissenschaft.* München: Ernst Reinhardt Verlag

Marton, F. (1981) Phenomenography - describing conceptions of the world around us. *Instructional Science* 10, 177-200

Marton, F. & Säljö, R. (1976) On qualitative differences in gearning. *British Journal of Educational Psychology* 46, 115-127

Mitchell, J. (1992) Guided didactic conversation: the use of Holmberg's concept in higher education. In Ortner, G.E., Graff, K. & Wilmersdoerfer, H. *Distance education as two-way communication. Essays in honour of Börje Holmberg.* Frankfurt am Main: Peter Lang

Morgan, A. (1984) A report on qualitative methodology in research in distance education. *Distance Education* 5, 4, 252-267

Morgan, A. (1992) Theorising adult change and development through research in distance education. In Evans, T. & Juler, P. (eds), *Research in distance education* 2, 81-88. Geelong: Deakin University

Morgan, A., Taylor, E. & Gibbs, G. (1982) Variations in students' approaches to studying. *British Journal of Educational Technology* 13, 2, 107-113

Moore, M.G. (1973) Toward a theory of independent learning and teaching. *Journal of Higher Education* XLIV, 12, 661-679

Moore, M.G. (1976) *Investigation of the interaction between the cognitive style of field independence and attitudes to independent study among adult learners who use correspondence independent study and self-directed independent study.* Diss. Madison: University of Wisconsin

Moore. M.G. (1977) A model of independent study. *Epistolodidaktika* 1977, 1, 6-40

Parer, M. (1994) Toward a theory of open and distance learning. In Parer, M. (ed.), *Unlocking open Learning*, 231-245. Churchill: Monash University, Centre for Distance Learning

Perraton, H. (1981) A theory for distance education. *Prospects* XI, 1, 13-24

Perraton, H. (1987) Theories, generalisation and practice in distance education. *Open Learning* 2, 3, 3-12

Peters, 0. (1973) *Die didaktische Struktur des Fernunterrichts. Untersuchungen zu einer industrialisierten Form des Lehrens und Lernens.* Weinheim: Beltz

Peters, 0. (1983) Distance teaching and industrial production: a comparative interpretation in outline. In Sewart, D. Keegan, D. & Holmberg, B. (eds), *Distance education: International perspectives.* London: Croom Helm

Popper, K. (1976) *Conjectures and refutations.* London: Routledge and Kegan Paul

Popper, K. (1980) *The logic of scientific discovery.* London: Hutchinson

Rekkedal, T. (1983) The written assignments in correspondence education. Effects of reducing turn-around time. *Distance Education* 4, 2, 231-252

Rekkedal, T. (1985) *Introducing the personal tutor/counsellor in the system of distance education.* Oslo: NKI

Richey, R. (1968) *The theoretical and conceptual bases of instructional design.* London: Kogan Page

Rumble, G. (1992) Explanation, theory and practice in distance education. In Ortner, G.E., Graff, K. & Wilmersdoerfer, H. *Distance education as two-way communication. Essays in honour of Börje Holmberg.* Frankfurt am Main: Peter Lang

Rumble, G. (1995) Labour market theories and distance education II: How Fordist is distance education? *Open Learning* 10, 2, 12-28

Saba, F. (1989) Integrated telecommunication systems and instructional transaction. In Moore, M.G. & Clarke, G.C. (eds), *Readings in principles of distance education.* University Park: The American Center for the Study of Distance Education, The State University of Pennsylvania

Sparkes, I. (1993) Distance education and conceptual learning. In Parer. M. (ed.), *Developing open courses.* Churchill: Monash University, Centre for Distance Learning

Thorpe, M. (1995) Bringing learner experience into distance education. In Sewart, D. (ed.), *One world many voices. Quality in open and distance learning* 1, 364-367. Milton Keynes: ICDE/ The Open University

Waller, R. (1977) *Typographic access structures for educational texts.* Milton Keynes: The Open University, IET

Weingartz, M. (1981) *Lernen mit Texten.* Bochum: Kamp

Weingartz, M. (1990) *Selbständigkeit im Fernstudium.* Hagen: FernUniversität, ZIFF